

**Patent Claims**

1. Device for supplying electrical energy to a sensor which is at a high electrical voltage in painting systems, characterised in that it comprises:

- 5    a) a light source (1) which is at a low electrical potential, in particular the earth potential;
- b) a light receiver (2) in which a converter (3) converting light energy into electrical energy is provided, which is electrically connected to the  
10      sensor and is at the high potential of the sensor;
- c) an optical waveguide (4) which connects the light source (1) to the light receiver (2).

2. Device according to Claim 1, characterised in that  
15      the converter (3) is a solar cell.

3. Device according to Claim 1 or 2, characterised in that the optical waveguide (4) is formed by a bundle of optical fibres.

20      4. Device according to Claim 3, characterised in that the light receiver (2) has a housing (5) in which is a transparent plate (6), into which the ends of the fibres of the optical waveguide (4) are fed, is arranged in the vicinity of a side wall, all the internal surfaces of the housing (5) which the light emerging from the transparent plate (6) can reach being provided with a reflective layer (7).

30      5. Device according to Claim 4 characterised in that the transparent plate (6) is a plastic plate.

6. Device according to Claim 4 or 5, characterised in that the reflective layer consists of aluminium foil.

7. Device according to one of Claims 1 to 3, 5 characterised in that the light receiver contains a converging lens by which the light emerging from the end face of the optical waveguide is essentially collimated and thus guided onto the converter.

10 8. Device according to one of the preceding claims, characterised in that it contains an accumulator (8) which is constantly charged by the voltage being generated by the converter (3).